REMARKS

The foregoing amendments and these remarks are in response to the Office Action dated April 1, 2010. Applicant hereby requests a three month extension of time for filing this response. Authorization is given to charge the appropriate fees to Deposit Account No. 50-0951.

At the time of the Office Action, claims 1-3 were pending. In the Office Action, claims 1 and 2 were rejected under 35 U.S.C. §102(a). Claims 1-3 were rejected under 35 U.S.C. §103(a). Claims 1-7 were rejected on the ground of non-statutory obviousness-type double patenting. The rejections are discussed in more detail below.

I. Rejections based upon art

Claims 1 and 2 were rejected under 35 U.S.C. §102(a) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as being obvious over EP 1236505 to Filippi et al. (hereafter "*Filippi*"). Claims 1-3 were rejected under 35 U.S.C. §102(b) as being anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over GB 391444 to Groombridge ("*Groombridge*"). Claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over *Filippi* in view of U.S. Patent No. 4,769,220 to Zardi.

The Examiner has rejected the subject-matter of present claim 1 as being anticipated by or, in the alternative, as being obvious over *Filippi*.

First, it is noted that Applicant has already discussed the non relevance to the present claims of *Filippi* in the response filed on April 3, 2009. Indeed, it was the opinion of the Applicant that such arguments were considered as persuasive since in the subsequent Office Action of September 7, 2009 the patentability of method claims 1-2 was recognized (see also page 7, point 8 of such Office Action).

The assertion made by the Examiner wherein the method of *Filippi* discloses or teaches to feed at least part of the reactants within the catalytic mass of a catalytic bed at different points of the catalytic mass corresponding to different successive stages of the reaction which takes place in the catalytic bed, is traversed as being incorrect.

In *Filippi*, none of the above features is disclosed or suggested. On the contrary, according to *Filippi*, it is the heat exchange fluid, which is fed within (inside) the heat exchanger at different points thereof. See, for instance, the abstract of *Filippi* which states "the [operating] fluid passing

through at least one heat exchanger according to a respective inlet/outlet path, which method also provides feeding into at least one heat exchanger and at one or more intermediate positions of said path, a second flow of operating fluid having a respective predetermined inlet temperature" (emphasis added). This is also confirmed by the apparatus of *Filippi*, wherein the distributor-suppliers (such as carters 8 and 9) open through respective holes (such as holes 13) to the inner chamber of the heat exchanger while the distributor-suppliers are fully closed towards the outside, i.e. the catalyst mass (see figures).

This is exactly the opposite of the claimed method wherein the reactants are fed within the catalytic bed at different points of its catalytic mass. Nothing is said in *Filippi* about the feeding of the reactants in the catalytic mass surrounding the heat exchanger. It seems that the Examiner has superficially compared the embodiment of figure 4 of *Filippi* with the embodiment of figure 2 of the present application, which accidentally looks similar, without however suitably considering their drastic structural differences. In *Filippi*, holes 32 are provided on the heat exchanger wall 21 in a region of the heat exchanger closed by distributors 30, 31. Differently, according to the presently claimed method and system, the heat exchanger walls 27, 28 are not perforated while holes 26 are provided on the distributors (carters 20, 22). Moreover, in *Filippi* the distributors 30, 31 are fed with a heat exchange fluid which subsequently enters within the heat exchanger through holes 32, while in the present application the distributors 20, 22 are fed with reactants, which then enter the catalytic mass through holes 26.

For the foregoing reasons, Applicant asserts that the subject matter of claim 1 is new and inventive over *Filippi*.

Furthermore, the Examiner has rejected the subject-matter of independent claims 1 and 3 as being anticipated by or, in the alternative, as being obvious over *Groombridge*. *Groombridge* discloses a method for the oxidation of ethyl alcohol to acetaldehyde in a catalytic bed 2 operating under pseudo-isothermal conditions. According to this method, ethyl alcohol vapor is supplied through inlet 15 and perforated plate 19 into the catalytic bed 2, while the other reactant, oxygen or air, is fed into the catalytic bed through perforations 18 of tubes 10 extending in the catalytic bed 2 (see for instance page 3, lines 123-129, and figure 1). In the alternative, as a secondary embodiment, *Groombridge* also mention the possibility of feeding through perforated tubes 10 a mixture of both reactants (see figure 2 and corresponding description.

In order to better distinguish the present invention from *Groombridge*, Applicant has inserted the features of claim 2 into claim 1. In this respect it is noted that *Groombridge* is silent at least about the claimed steps of preheating a main flow of reactants through heat exchange with the catalytic bed by feeding such reactants trough heat exchangers immersed in the catalytic bed, and of recovering said preheated flow of reactants. Indeed, according to *Groombridge*, the cooling members 3 are fed solely and exclusively with water to produce steam (see water inlet 7 and steam outlet 9 of figures 1, 2). No disclosure or suggestion of a possible preheating of the reactants trough heat exchange with the catalytic bed can be found in this prior art document.

It follows that the subject matter of claim 1 should be regarded as new and inventive also in view of *Groombridge*.

The above arguments also apply to the reactor of claim 3. Indeed *Groombridge* fails to disclose or teach most of the features recited in present claim 3. The tubes 10 are not associated with the cooling members 3. The cooling members 3 are not plate shaped, suitable to be crossed by the reactants and divided in two fluid-tight separated chambers. Moreover, no perforated carter fixed and associated to such cooling members 3 for feeding a flow of reactants into the catalytic bed is present in the reactor according to *Groombridge*. In other words, at least the features of claim 3 starting from "at least one distributor-supplier" till the end of the claim are fully missing from *Groombridge*.

For at least the above reasons, it is submitted that the subject matter of amended claims 1 and 3 is not anticipated by nor rendered obvious by the cited prior art, and is therefore patentable.

II. Double Patenting Rejection

Claims 1-3 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 and 7 of copending Application No. 11/572,403 to Filippi et al. ("*Filippi '403*"). Claims 1-3 were further rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-10 of U.S. Patent No. 7,186,389 ("*Filippi '389)* in view of *Filippi*. Claims 1-3 were also rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 7,087,205.

These rejections are traversed because, for the reasons given above, *Filippi* is not believed relevant to the claims of the present application. Additionally, as noted previously, both *Filippi '389* and *Filippi '205* fail to disclose or suggest the reactants being fed within a catalytic mass of the catalytic bed at different points of the catalytic mass corresponding to different successive stages of the reaction which take place in the catalytic bed. The claims of both *Filippi '389* and *Filippi '205* noted by the Examiner refer to feeding operating fluids in at least one tubular heat exchanger. For the reasons outlined above, this is not the same as feeding reactants within a catalytic mass.

III. Conclusion

Applicants have made every effort to present claims which distinguish over the prior art, and it is thus believed that all claims are in condition for allowance. Nevertheless, Applicants invite the Examiner to call the undersigned if it is believed that a telephonic interview would expedite the prosecution of the application to an allowance. In view of the foregoing remarks, Applicants respectfully request reconsideration and prompt allowance of the pending claims.

Respectfully submitted,

Date: 10/1/10

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